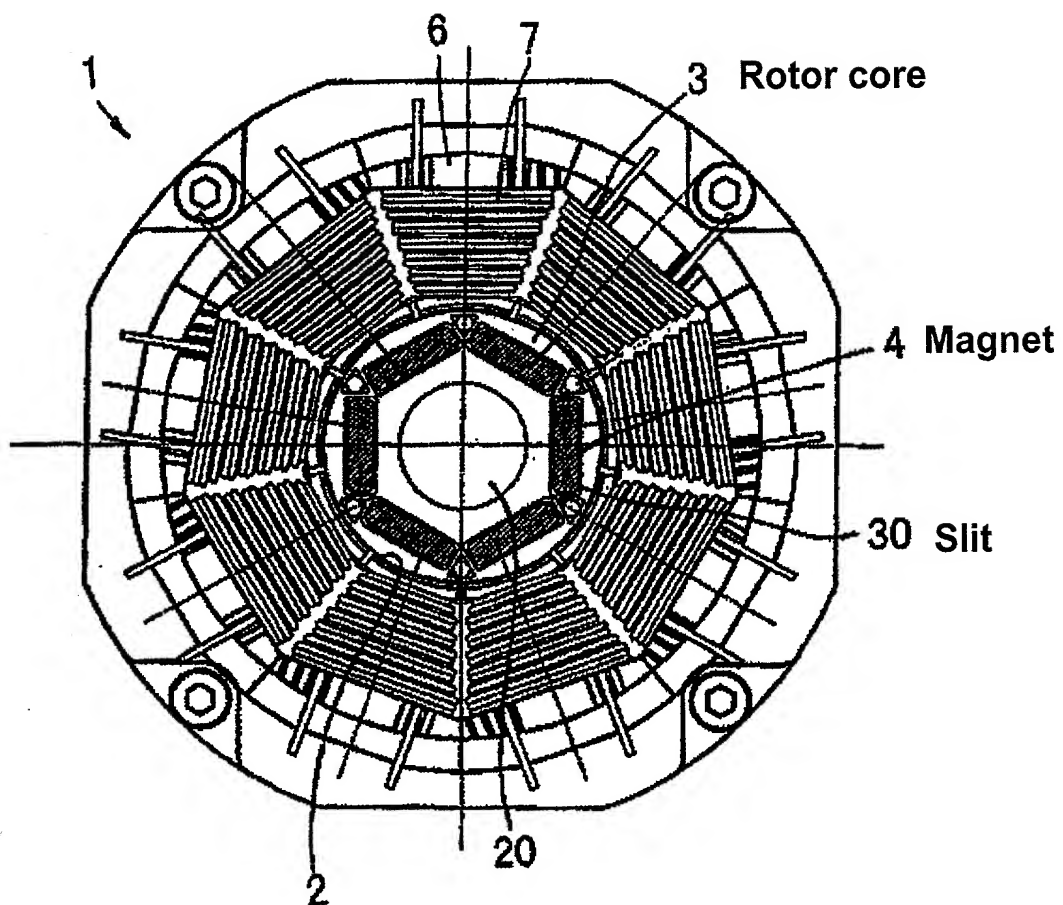


Fig. 1



1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \int_0^x f(t) dt$. It is shown that $f(x)$ is a continuous function and that it satisfies the functional equation $f(x+y) = f(x) + f(y)$. The function $f(x)$ is also shown to be differentiable and its derivative is found to be $f'(x) = f(x)$. This implies that $f(x) = Ce^x$ for some constant C . The value of C is determined by the initial condition $f(0) = 1$, which gives $C = 1$. Therefore, the function $f(x)$ is $f(x) = e^x$.

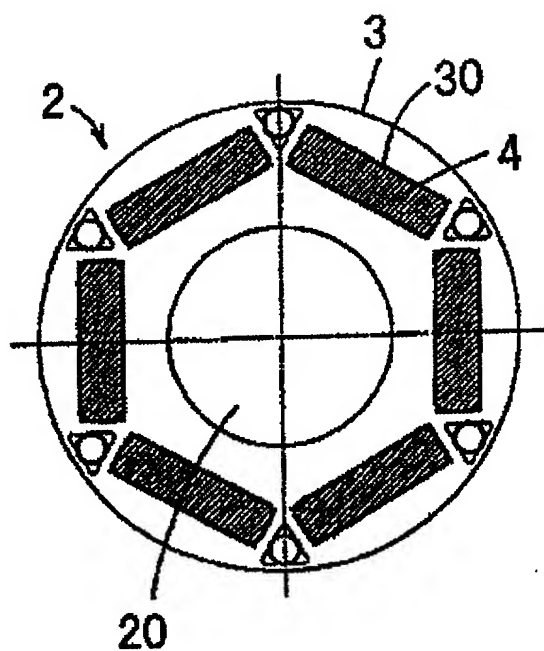
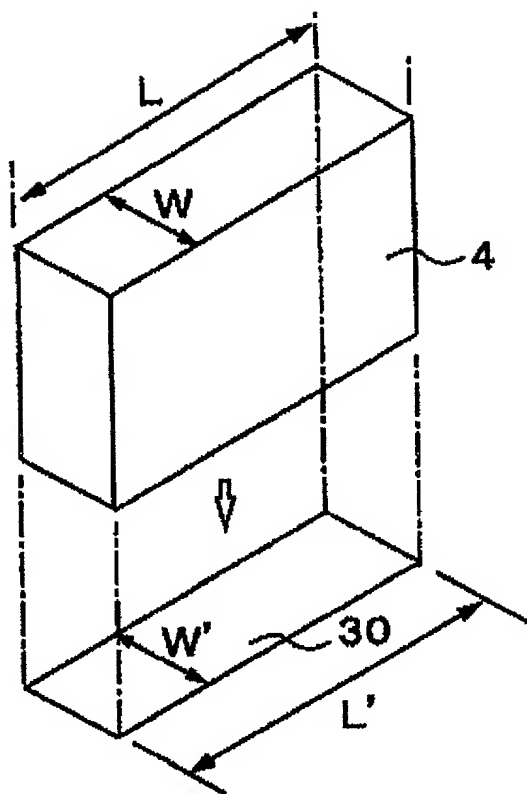


Fig. 3



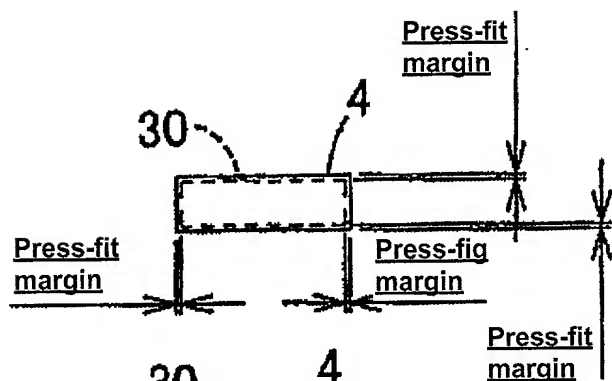


Fig. 4 (A)

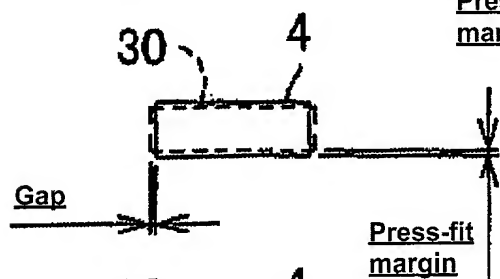


Fig. 4 (B)

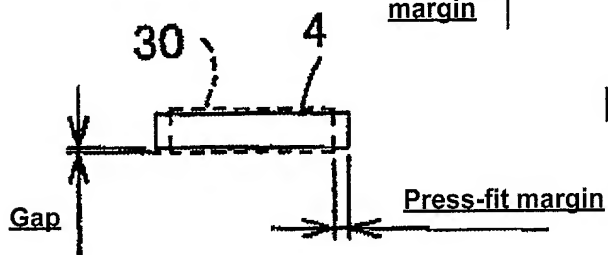
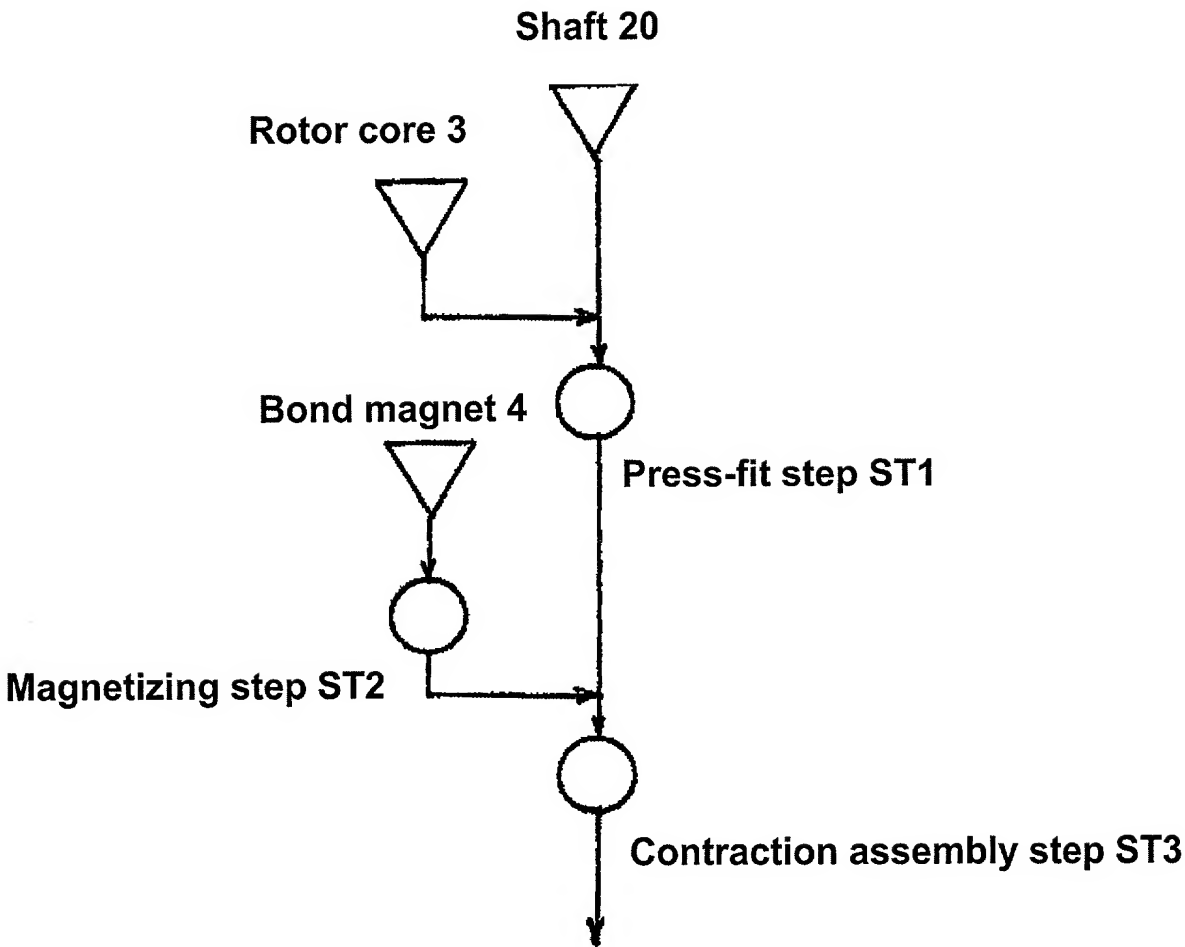


Fig. 4 (C)

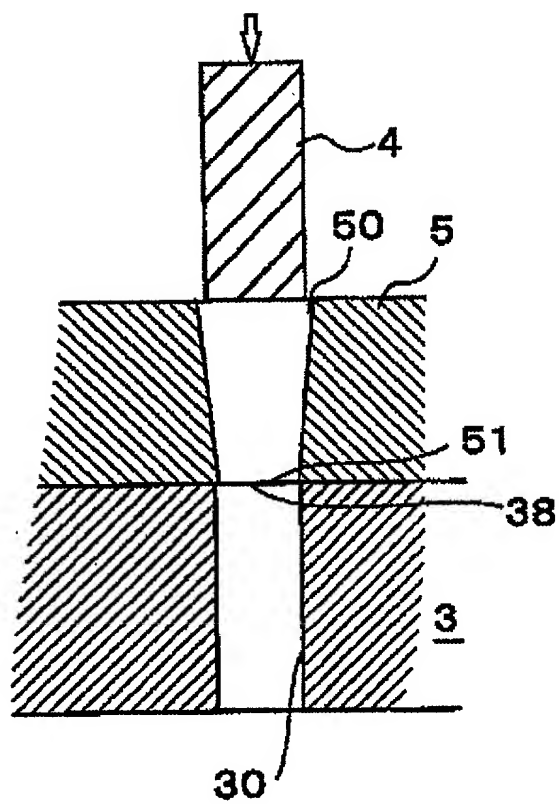
Broken line: Cross section of slit
Solid line: Cross section of magnet

Fig. 5



40036050-10001

Fig. 6



10036090 110601

Fig. 7

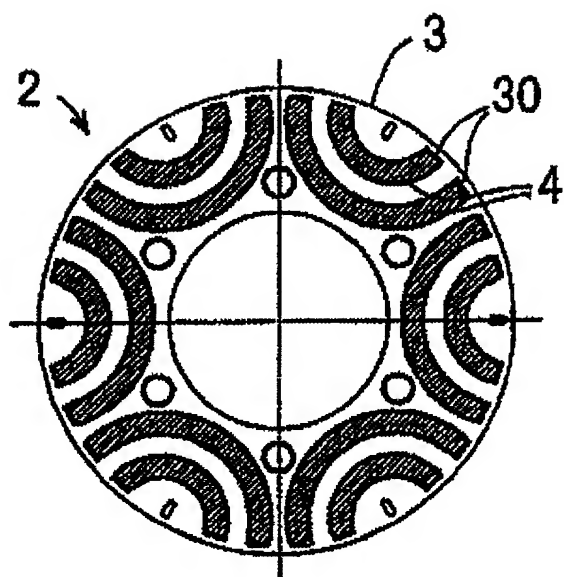


Fig. 8

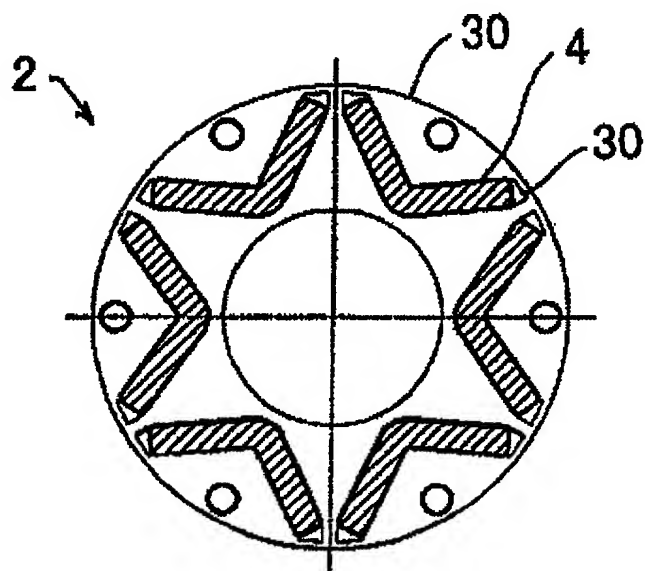


Fig. 9

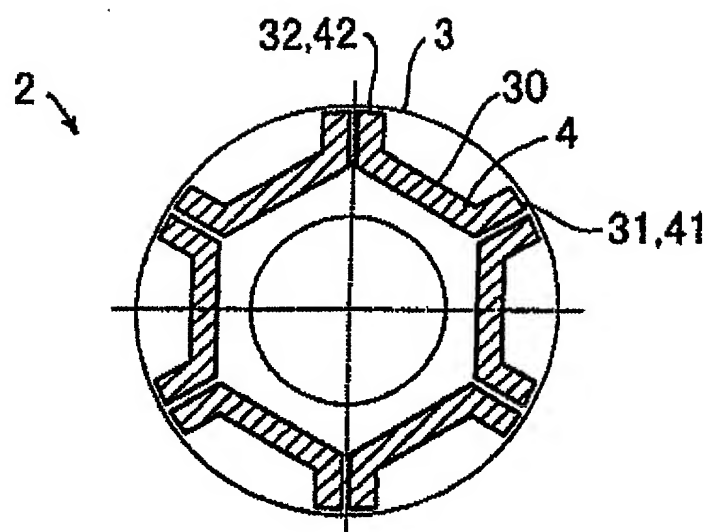


Fig. 10

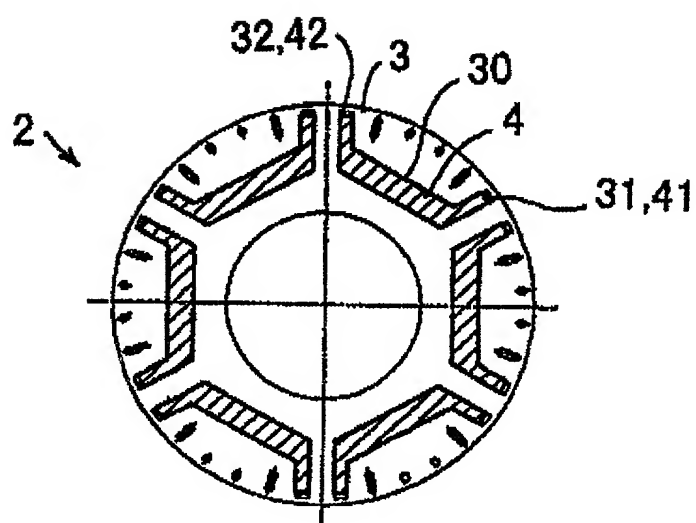


Fig. 11

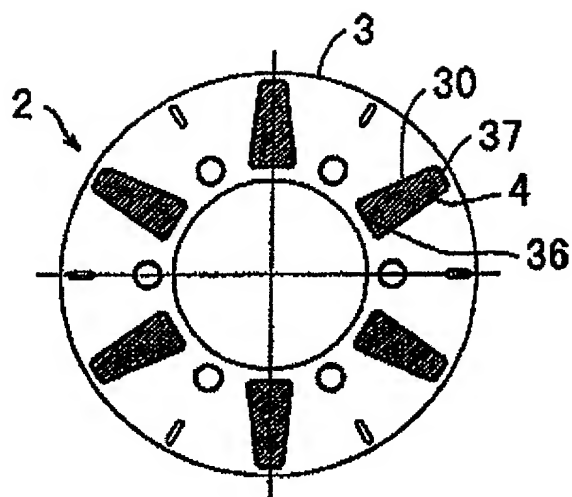


Fig. 12

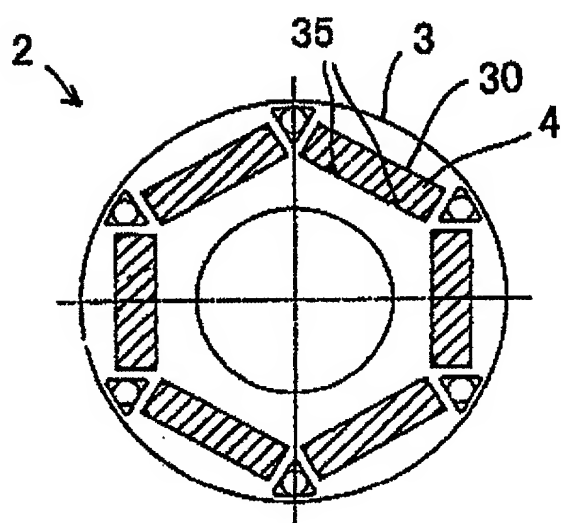


Fig. 13 (A)

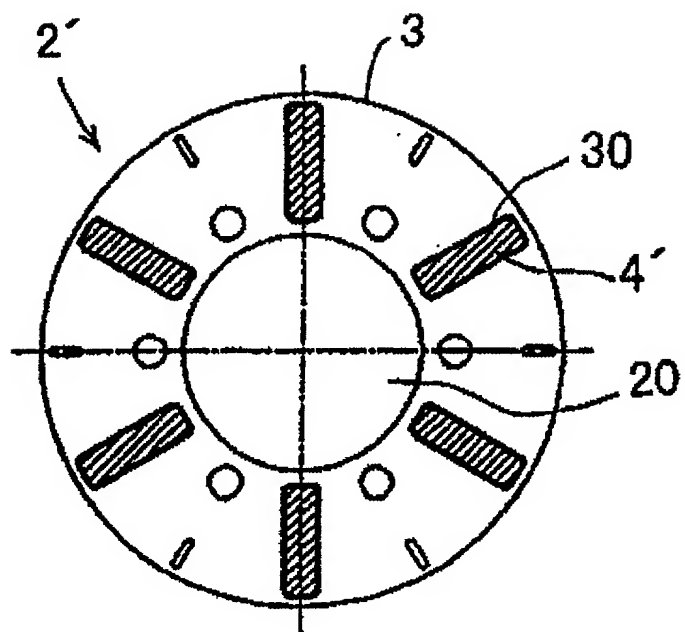


Fig. 13 (B)

